REMARKS

This is intended as a full and complete response to the Office Action dated June 7, 2006, having a shortened statutory period for response set to expire on September 7, 2006. Claim 1 has been amended to more clearly recite various aspects of the invention. Applicants believe no new matter has been introduced by the amendments presented herein. The amendments have been made in a good faith effort to advance prosecution on the merits. Please reconsider the claims pending in the application for reasons discussed below.

In a telephone interview on August 29, 2006 and September 6, 2006, the Examiner agreed to withdraw the Examiner's objection that the oath or declaration is defective. The Examiner also agreed to withdraw the Examiner's rejection under 35 USC 102(f), under 35 USC 102(a) over PRESTACK WAVEFORM INVERSION USING A GENETIC ALGORITHM – THE PRESENT AND THE FUTURE by S. Mallick, CSEG Recorder (June 2001) ("Mallick 2001") and under 35 USC 102(b) over "Deepwater Geohazard Analysis Using Prestack Inversion" by de Kok et al., SEG September 2001 Expanded Abstracts ("de Kok"). Applicants appreciate the Examiner's courtesy for scheduling and conducting the interview.

In the Office Action, Figure 6 is objected to for lacking a PRIOR ART legend in view of Figure 1 in de Kok. During the above referenced interview, the Examiner agreed that de Kok is not a proper 102(a) reference. Accordingly, withdrawal of the objection is respectfully requested. Further, Figures 7 and 8 have been amended to remove the PRIOR ART legend since Mallick 2001, which is the basis for the objection to Figures 7 and 8, is not a proper 102(a) reference.

The Examiner further objects to the oath or declaration for being defective on the basis that the 132 affidavit by S. Mallick ("132 affidavit") raises a question about inventorship. However, during the above referenced interview, the Examiner agreed with Applicants that authorship and inventorship do not involve the same concept. See MPEP 715.01(c) and 716.10. In this instance, the originally filed declaration effectively states that the proper inventors of the present application are both S. Mallick and N.

Dutta, and thus the originally filed declaration is not defective. Accordingly, withdrawal of the objection is respectfully requested.

Claims 1-27 stand rejected under 35 USC 102(f). The Examiner takes the position that Applicants did not invent the claimed subject matter based on the 132 affidavit. Applicants respectfully traverse this rejection. During the above referenced interview, the Examiner agreed with Applicants that this rejection under 35 USC 102(f) be withdrawn. Accordingly, withdrawal of the rejection is respectfully requested.

Claims 1-27 stand rejected under 35 USC 102(a) as being anticipated by Mallick 2001. Applicants respectfully traverse this rejection. During the above-referenced interview, the Examiner agreed with Applicants that Mallick 2001 is an improper 102(a) reference. Accordingly, withdrawal of the rejection is respectfully requested.

Claims 1-5 and 7-27 stand rejected under 35 USC 102(b) as being anticipated by de Kok. Applicants respectfully traverse this rejection. During the above-referenced interview, Applicants discussed with the Examiner that de Kok is not a proper 102(b) reference since it was published within one year from the present application's filing date. The Examiner agreed to withdraw de Kok. Accordingly, withdrawal of the rejection is respectfully requested.

Claims 1-5 and 7-27 stand rejected under 35 USC 103(a) as being unpatentable over SOME PRACTICAL ASPECTS OF PRESTACK WAVEFORM INVERSION USING A GENETIC ALGORITHM: AN EXAMPLE FROM THE EAST TEXAS WOODBINE GAS SAND by S. Mallick, Geophysics, Vol. 64, No. 2, pages 326-336 (March-April 1999) ("Mallick 1999") in view of US Patent No. 6,694,261 ("Huffman").

Mallick 1999 is generally directed to a prestack inversion technique using a genetic algorithm. However, Mallick 1999 does not teach or disclose comparing the pressure-wave velocity to the shear-wave velocity to determine the shallow water flow risk. In contrast, Mallick 1999 proposes comparing the post stack inversion with the prestack inversion to demonstrate the superiority of the prestack inversion. See page 331, column 1.

The Examiner reiterates that Poisson's ratio is well known and that such ratio is described in the top portion of column 1, page 329 of Mallick 1999. However, the top portion of column 1, page 329 of Mallick 1999 merely states "PPD functions for density

and Poisson's ratio, in conjunction with the PPD functions of P-wave traveltime and P-wave velocity, give the density and Poisson's ratio models. A complete elastic earth model can therefore be obtained from these PPD plots." Nothing in these pages mentions or even suggests a comparison between the pressure-wave velocity to the shear-wave velocity to determine the shallow water flow risk.

Similarly, Huffman is generally directed to identifying shallow water flow hazards using marine seismic data. However, like Mallick 1999, Huffman does not teach or disclose comparing the pressure-wave velocity to the shear-wave velocity to determine the shallow water flow risk.

Neither Mallick 1999 nor Huffman, alone or in combination, teaches or discloses comparing the pressure-wave velocity to the shear-wave velocity to determine the shallow water flow risk. Furthermore, there is no suggestion discerned in Mallick 1999 or Huffman of modifying the devices or methods disclosed therein in the direction of claims 1 or 26, nor is there any suggestion of the desirability of such modifications. The absence of such a suggestion to combine the references is dispositive in an obviousness determination. *Gambro Lundia AB v. Baxter Healthcare Corp.*, 110 F.3d 1573, 1579 (Fed. Cir. 1997). Therefore, claims 1 and 26 are patentable over Mallick 1999 in view of Huffman. Claims 2-5, 7-25 and 27 are also patentable over Mallick 1999 in view of Huffman since they depend from claims 1 and 26, respectively.

Claim 6 stands rejected under 35 USC 103(a) as being unpatentable over Mallick 1999 in view of Huffman and KIRCHHOFF IMAGING AS A TOOL FOR AVO/AVA ANALYSIS by Tygel et al., The Leading Edge (August 1999) ("Tygel").

Neither Mallick 1999 nor Huffman nor Tygel, alone or in combination, teaches or discloses comparing the pressure-wave velocity to the shear-wave velocity to determine the shallow water flow risk, as recited in claim 1. Furthermore, there is no suggestion discerned in Mallick 1999, Huffman or Tygel of modifying the devices or methods disclosed therein in the direction of claim 1, nor is there any suggestion of the desirability of such modifications. Since claim 6 depends from claim 1 and since neither Mallick 1999 nor Huffman nor Tygel, alone or in combination, teaches, discloses or suggests all the limitations of claim 1, claim 6 is therefore also patentable over Mallick

1999, Huffman and Tygel. Accordingly, withdrawal of the rejection is respectfully requested.

In conclusion, the references cited by the Examiner, neither alone nor in combination, teach, show, or suggest the claimed invention. Having addressed all issues set out in the office action, Applicants respectfully submit that the claims are in condition for allowance and respectfully request that the claims be allowed.

Respectfully submitted,

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